

## Random walk with scattering boundaries:

Imagine a random walk on the integers from 1 to 5. From 1 or 5, the walk goes to any state with equal probability, and from the remaining states, the walk may take steps of size 0 or 1, but they are biased toward the center.

For example, consider the t.p.m:

$$\mathbf{P} = \begin{array}{c} \nearrow \\ \begin{matrix} 1 \\ 2 \\ 3 \\ 4 \\ 5 \end{matrix} \end{array} \begin{pmatrix} & \begin{matrix} 1 & 2 & 3 & 4 & 5 \end{matrix} \\ \begin{matrix} .2 & .2 & .2 & .2 & .2 \\ .2 & .3 & .5 & 0 & 0 \\ 0 & .3 & .4 & .3 & 0 \\ 0 & 0 & .5 & .3 & .2 \\ .2 & .2 & .2 & .2 & .2 \end{matrix} \end{pmatrix}$$

Computer Demo:  $\mathbf{t_{pm}}$